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Let Your Fingers Do the Paying

By **HARRIET KING**

SEATTLE—In this West Coast city, the future is here—and if you don't go crazy hitting your touch tone phone 36 times to pay a \$15.32 bill, it works.

This state's largest mutual savings bank has gone operational with a system—complete with talking computer—that allows customers to pay bills by phone. No checks, no signatures, no 13 cent stamps, just punch away at the phone and it's done.

"We went into electronic banking to compete for our future livelihood," says Bruce Baker, senior vice president-marketing at Washington Mutual Savings Bank. "Commercial banks have been drawing customers from thrift institutions so we real-

ized we had to offer a payment service as close to a checking account as we could, legally."

Washington Mutual kicked off its Passcard Plus account, as it's called, in 23 of its 33 statewide branches in May and will put it in the remainder this fall. About 1,600 consumers now pay \$2 a month for the convenience of paying any of 1,600 merchants or credit card companies by phone. Fifteen bill transactions will, in postage stamp savings, cover the \$2 and the accounts also pay 5¼ percent interest.

Those with dial phones at home or office simply call the bank, talk to a real live bank teller, give their secret pass-code number, tell who they want to pay and how much.

But those with touch tone button phones get to leap into the world of "Logan's Run."

First, the bill payer in Seattle punches 464 4747 (7 digits) A soft female voice, the computer, says "Please enter your account number." That calls for nine more digits plus the 12th button on the touch tone phone (the #), the activator (you have now punched 17 digits). The computer repeats the number by voice, then asks for your secret pass code. That's four more digits and the # (or 22 digits total). The computer repeats it, then asks aloud for the payment code, a number for the store to be paid. That's four more digits and # or 27 numbers. There's a voice repeat, of course, and the request for the payment amount; say \$15.32 (the asterisk covers the decimal point) and adds six digits running the total to 33). Sign off is 02 plus (#) (three digits, or 36 for the whole bill).

Of course, if the caller catches a mistake, he hits the asterisk, the computer cancels the entry and asks for the correct information. And if the phoner doesn't sign off (02#) he can pay as many



The New York Times/Dbus Wilson

With the proper code, Seattle bill payers can tap their cares away.

bills as he wants on one call.

The bank has a story about one customer who had one \$170 bill to pay, paid, but then forgot to push the 02# signoff. The computer then asked for more bills and the customer, thinking the computer hadn't heard him the first time—or something—paid his \$170 bill again, and again, and again and again—five times in all. It took a while, but with a bit of human intervention, all was straightened out.

One of the bank's major goals is to lure new customers with Passcard Plus. "We feel that the average age of people who'll use Passcard Plus is 35. That's crucial because currently, industry statistics show that the average age of those who use thrift institutions is 55. And let's face it, the elderly are literally a vanishing breed so we need to be able to provide competitive advantages to new, younger customers," says Mr. Baker.

"Older customers seem reluctant to change their life style," he says. "They're used to dealing with paper and getting that cancelled check. The young, however, are eager to experiment. They grew up with computers and trust them." He anticipates that Passcard Plus users would keep \$1,500 in ac-

counts, "but we're discovering that the average customer keeps \$2,500 in these accounts," he says.

A less successful forerunner of the pay-by-phone service came in 1973 when Seattle-First National Bank introduced their In Touch program using touch tone phones as in-the-home computers to conduct six banking services. Sea-First lured 500 customers who paid \$6.50 a month. Only 100 merchants participated.

When the system failed a few months later, Washington Mutual and seven other thrift institutions formed a holding company and bought 51 percent of Telephone Computing Services, designer of the In Touch program. Some of the partners, including Farmers & Mechanics Savings Bank in Minneapolis, have introduced programs already, similar to Passcard Plus.

"We didn't want to be the first partner to introduce this system because Sea-First had already failed with electronic banking. Failing twice in Seattle would have made other markets awfully wary," says Mr. Baker.

But the new effort has been very successful. We projected we'd have 14,000 consumers by the end of the first

year. But if we continue at this pace, we may get up to 20,000 users. Our customers are selling us to their friends," he brags.

"We determined that to be successful, we needed a base of 1,000 merchants. We now expect to have over 2500 by year end," he says. It costs merchants nothing to subscribe. They receive one check for all of the business transacted by the bank the previous day, plus a computer print out and tapes that can be run through the merchants' computers for automatic posting and updating.

"We'll be 18 months to two years into the program before we break even. We didn't get into it to be profit making, yet we can't afford to lose money, either." And the bank hopes for a 3 percent profit eventually.

The biggest program was signing well known merchants. "We went for a period of weeks without some major payees—like the Bon Marche which we just added last week. The Bon (Allied Stores Corporation's regional chain of prestige department stores) waited to see if we'd have enough volume to make it worth their while. They needed to be convinced—and were.

"Another problem is that major City of Seattle utilities are undergoing complete changeovers in billing procedures so we can't handle those accounts until late summer." The only major retailer he doesn't yet claim is Frederick & Nelson, a division of the Marshall Field & Company. "They're in favor of it, but are waiting for the OK from Chicago," says Mr. Baker.

There are a few technical problems, but "whenever you're burning in hardware, you have pieces that fail within the first two to three months and that eventually will work forever. We expect to be over this stage soon. The software is becoming stable," says Wayne Wallace, assistant vice president for computer operations.

Washington Mutual says it spent a half million dollars to get the program where it is, and were within our budget. The majority of costs are for hardware and programming. But costs didn't

deter us—the bank was serious about the potential for electronic banking," says Mr. Baker.

He notes that the figure "doesn't show all the costs, however." He figures that Sea-First spent a half-million dollars on In Touch and "Farmers & Mechanics, too, spent a fair amount."

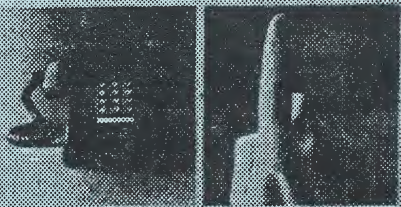
Now the bank is getting ready to market the service. "Later this year, we might begin discussions with other bankers and savings and loan officers who want to buy the system from us," says Mr. Baker. "There's money to be made there, yet if we do it, we'll lose some of our market advantage of having the system exclusively. It's a delicate balance."

Merchants seem to like Passcard Plus. "We're pleased and have no major problems. But we see the possibility of a minor one ahead," says Charles RobINETTE, credit manager of the Puget Sound Power & Light Company. Utility customers move around and each housing unit has its own, permanent account number. We're afraid customers who move may wind up paying into the wrong account. But we'll work it out. The program offers us a lot. We get one guaranteed check: that cuts down our bad check losses."

"It's an easy system. The accounting is very accurate. Because they give us computer tapes, posting takes no time at all," says John Walgamott, assistant credit manager at Nordstrom, a Seattle area department store chain.

Mr. Walgamott says he personally intends to open a Passbook Plus account. "I've been watching one of my friends who makes a game of timing his bill payments so he can get the maximum interest possible. I'm ready to do the same for my own bill; I'll make every change in my personal accounting system I can to maximize every penny. It's the way to run any good business."

Introducing two revolutionary new devices for paying your bills.



The Washington Mutual Savings Bank in Seattle is advertising its computer service with photographs of the two instruments needed to pay bills. Bills may also be paid by calling a teller who will make the necessary entry in computer.

T/S Bureau Replaces 370s

Other Users Convince Firm to Get 470

By Toni Wiseman
Of the CW Staff

BETHESDA, Md. — An in-depth survey of all current installations convinced management at Scientific Time Sharing Corp. that an Amdahl Corp. machine was the way to go, even without any benchmarking on the firm's part.

"Our personnel visited every Amdahl installation in the U.S. and spoke with a Canadian site to confirm with other users what improvements they are seeing," according to Daniel Dyer, president of the time-sharing firm.

"Our findings confirmed what Amdahl told us we could expect," Dyer said. "In fact, some of the universities which were running APL reported they were sometimes getting slightly better performances with APL than they were with other work."

Consequently, Scientific Time Sharing installed a 4M-byte Amdahl 470V/6, replacing two IBM 370/155s which had been handling its APL services.

Dyer would not estimate the maximum number of users the system can handle;

that figure depends largely on the nature of the work the customers are running, he said, and "the emphasis should be on balancing response time with the number of users to get as many users as possible at a response time that's acceptable."

He did, however, estimate the 470 is about eight times faster than a 155.

As a result, the service firm has adjusted its user pricing by a factor of 7.43 to 1, relative to what it was charging for the 155, he said.

Scientific Time Sharing experienced no problems in installation or conversion, he said. The order was placed on a Monday and the machine was running the following Sunday, Dyer said.

Two Software Changes

Only two software changes were necessary. First, the firm wanted to go to a higher resolution timer because the 470 was so much faster, so software was written to support that change.

Secondly, it moved up from OS Release 21.7 to Release 21.8 to use some corrections made in multiple console support,

Dyer indicated.

Scientific Time Sharing is experiencing better than 99% uptime, Dyer said, and has experienced only one hard failure to date. "And Amdahl had it fixed within half an hour," he added.

Two engineering changes have been necessary, he noted, "but in both cases the problems were very minor and Amdahl responded very promptly."

One problem concerns the CPU timer's failure to turn off when the machine is in log-out mode, according to Robert Smith, director of systems.

"This means we end up with some excess CPU time when it's going through machine check processing. But it doesn't happen very often so it isn't a serious problem," Smith said.

Amdahl has delivered a software enhancement to reduce the frequency of the problem and is working on a hardware enhancement which should be ready in a few weeks, he added, noting that Amdahl had indicated this feature would become standard on all 470s.

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DP services industry protests 'reform' bill

MONTVALE, NJ — Computer industry efforts to defeat the Consumer Communications Reform Act of 1976 increased this month as the Association of Data Processing Service Organizations (Adapso) began contacting members of Congress to enlist their support. Adapso represents software, data center, facility management and time-sharing companies.

"This legislation, if enacted, would pose adverse consequences for users of remote access data processing and time-sharing services," says Jerome L. Dreyer, Adapso executive vice president.

Passage would have four major results, he says, listing them as (1) elimination of competition between telephone common carriers, (2) regulatory control over com-

puter, station and terminal equipment, (3) provision by statute that the Federal Communications Commission must accept AT&T's incremental cost methodology as appropriate in all cases, and (4) antitrust immunity for acquisitions by telephone companies.

Adapso maintains the legislation would lead to increased computer systems costs resulting from the need to reconfigure existing computer networks. These costs, Dreyer says, would be passed along to users of the services.

Relegation of jurisdiction over station and terminal equipment to state regulatory commissions would eliminate any possibility of uniform nationwide technical standards for multi-state networks, he adds.

At the minimum, the viability of existing multi-state networks is threatened, he says, while at the worst, the continued existence of such networks is endangered.

And returning effective control of the domestic telecommunications industry to the telephone company would reduce the incentive for technological innovation, he adds.

Adapso doesn't dispute the position that every American should have basic telephone service at reasonable rates, but it does dispute placing regulation in state hands, maintaining that such fragmented control would result in higher operating costs.

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Decision Made on Three Criteria

NCSS Puts Amdahl 470 on IBM 370-Based Network

By Toni Wiseman
Of the CW Staff

STAMFORD, Conn. — There were three primary criteria which proved positive and encouraged National CSS, Inc. (NCSS) to add an Amdahl Corp. 470V/6 to its network — price/performance, diagnostic abilities and ease of installation.

At the time the decision was made to acquire a new computer, NCSS East Coast data center had an IBM 370/158 and a 370/168, and it was running out of capacity faster than expected because of an extremely good business year, according to Michael S. Field, vice-president of data systems for NCSS.

Its options were to add another 370/158 or to upgrade the 370/158 it had to either a 370/168 or an Amdahl system, he said.

"We'd been looking at Amdahl for about 12 months. We'd done some benchmarks in its Sunnyvale center and had some conversations with [the University of] Michigan and spoken to others about their experience, primarily Mass. Mutual Life Insurance Co.," Field said.

"As a result of our findings it seemed like [the acquisition of the Amdahl machine] was a reasonable business decision for us to make in terms of the kinds of improvement we expected to see within the 1.5 to 1.6 range, or 50% to 60% more throughput," he said.

NCSS has its own operating system, VP/CSS, which is of the same parentage as VM, Field said. It consists of two parts — the virtual control program or VP and its conversational software system or CSS.

VP is a 'virtual machine' control program that shares the resources of the hardware system among the tasks running on the system, which may involve time-sharing information, retrieval, batch processing, and other operating systems or remote batch.

Ran Benchmarks

At Sunnyvale, NCSS ran benchmarks where it "fired up more and more users to see how the system handled itself and measured its throughput," Field said.

Since the only machine available for tests was a 2M-byte system, it was forced to run a number of tests, extrapolate the results and project what the results would be with a full configuration.

"We're looking at a 6M-byte system when fully configured," Field said. "That's what we feel is a good balance for our operating system, between the memory size and the CPU power."

NCSS can run up to 250 users simultaneously on its 370/168. Based on the benchmarks, it feels the Amdahl machine should accommodate "50% as many as the 168, conservatively in the 350-plus area," he said.

Remarking on the three primary criteria which led to the selection of the 470V/6, Field said NCSS expected to achieve somewhere approaching a 2:1 ratio in terms of price/performance over the 370/168, where the cost of the Amdahl system was approximately 20% less than the 168, and the projected performance was 60% more.

"Even if we were being optimistic and 2:1 is better than we're going to get, even approaching that number is attractive to us," he said.

The 470V/6 costs in excess of \$4.25 million, of which approximately 75% will be on a long-term debt basis and the balance paid from general funds.

Field also praised Amdahl's diagnostic abilities which, he said, were necessary for their time-sharing applications.

In addition, the Amdahl machine was slated for installation in a new facility.

"It would have been quite expensive in terms of fitting it up for cool water for the 168," he said, "but the Amdahl is air

cooled and doesn't need it."

"It's also a more easily maneuverable and installable machine. The thing was installed in 12 hours compared with one to two weeks for a 168," he said.

"We didn't speak to anyone who had any reservations about their [Amdahl] system," Field said.

"I think Michigan did have a couple of problems right at the beginning, a channel problem which bugged them for a while. But that was the only negative comment we heard, and people at Michigan spoke about it in a positive way because they were impressed by the way Amdahl handled it," he said.

NCSS took the 470V/6 for an acceptance test in May and "submitted it to as many different loads and as heavy a load as we possibly could to exercise it both from the performance and reliability standpoints, just to see if it met our expectations," Field said.

The results were so satisfactory NCSS moved up the date for putting its customers on the system from June 15 to June 1.

"For the first two weeks we didn't see one hardware hit during prime time, which was remarkable for a new machine," Field said, "and since that time we've had maybe one or two hits, but nothing dramatic."

NCSS is not worried about Amdahl's viability as a hardware manufacturer, although it was an important consideration at one time, Field said.

In addition, NCSS, as well as others, have a backup agreement with the Fujitsu organization, in the event Amdahl itself could not provide maintenance services, he noted.

For small businesses

Time-sharing service offers 'flat rate' DP

WELLESLEY, MA — "Flat rate" data processing is one time-sharing service's answer to the inroads being made into its business by small in-house systems. For a packaged price of \$800/month, Keydata will provide time-sharing services as a "low cost, risk free alternative to the minicomputer."

Designed to appeal to small distributor and manufacturing companies in the \$750,000 to \$5 million sales range, the System 800 service provides billing, inventory control, accounts receivable and sales analysis plus monthly and quarterly management reports.

"We believe System 800 offers small business organizations a revolutionary new way to computerize their operations at minimum cost and with guaranteed results," says L. Edwin Donegan, president of Keydata, the oldest commercial time-sharing service.

Small businesses with little, or no, computer experience "are being inundated by sales presentations from people trying to convince them to install in-house minicomputer systems," Donegan says. But "the businessmen who run these companies generally lack the experience to undertake the risks involved in hardware selection, software creation, and the day-to-day operation of even the smallest minicomputer system.

"Yet these risks are more significant to them than to larger companies, since computer failures can literally put a small company out of business," Donegan adds.

Keydata's new service is based on the KRU (Keydata Resource Unit), a combination of four resource factors, including the number of customer invoices, the average number of invoice lines, the number of customer records, and the number of item records. For \$800, a customer is

allowed up to 175,000 KRUs/month. Companies whose requirements exceed this amount can use the service by paying \$4.75/month for each 1,000 additional KRUs.

Service features include the installation and maintenance of a terminal in the customer's office, computer access 14 hours a day during the week and 10 hours on Saturday, six monthly management reports and two quarterly reports. An initial charge of \$2,500 covers training of customer personnel and conversion of the customer's data to the Keydata system.

"In addition to being less costly than any minicomputer system currently available, the Keydata System 800 also offers more sophisticated management information than is generally available with even the larger minisystems," Donegan says. Keydata's office is at 20 William St., 02181.

Cassette drive added to portable terminal

OAKLAND, CA — Micon Industries has added a cassette drive to its Pocketerm portable terminal so that the battery-powered unit can collect up to 40,000 characters off-line for later transmission via its built-in acoustic coupler. Called Cassetterm, the new terminal also includes an alphanumeric keyboard and a 32-character LED display, all packaged in a four-pound unit not much bigger than a telephone.

After data is collected on the small cassette, the user can either transmit the data via telephone to a central computer at 300 baud or mail the cassette to the central site. "Information can be gathered anywhere because the Cassetterm is bat-



Portable Cassetterm

tery powered, and it can be immediately sight verified on the display," says William E. Northfield, Micon president.

Cassetterm is priced at \$1,495, with quantity discounts available, from Micon Industries, 252 Oak St., 94607.

The Trouble With Minis

by Philip H. Dorn, Contributing Editor

The trouble with minicomputers is that they refuse to stay mini, they grow just the way any computer grows. What begins as a very small, special purpose system somehow is transformed across time into a medium sized, general purpose system. After the prime motivating application is completed, somebody gets a bright idea to add more applications and the charge toward upgrading begins. A few cases in point:

Case 1

A major university once bought a minicomputer to do some very special research in structural analysis. A 16K system with no peripherals except a graphics console, it was operated by the professor for 2 to 3 hours a day. Five years pass. The professor's students are imaginative. The machine now has 32K of memory, a

things started again.

Case 2

A financial institution carefully specified a mini to be used for data collection. The system was small, 0.5MB of disc and 32K of memory. Two years later, the system had grown to 128K of memory, 5MB of disc, a larger model processor and a 300 lpm printer. Why? Because someone thought that as long as the data was collected, it ought to be edited. And, since the data was now clean, why not do a little processing to save time on the big system? The net result is that the system now operates almost around the clock and serves as a mini data center with operators and support personnel.

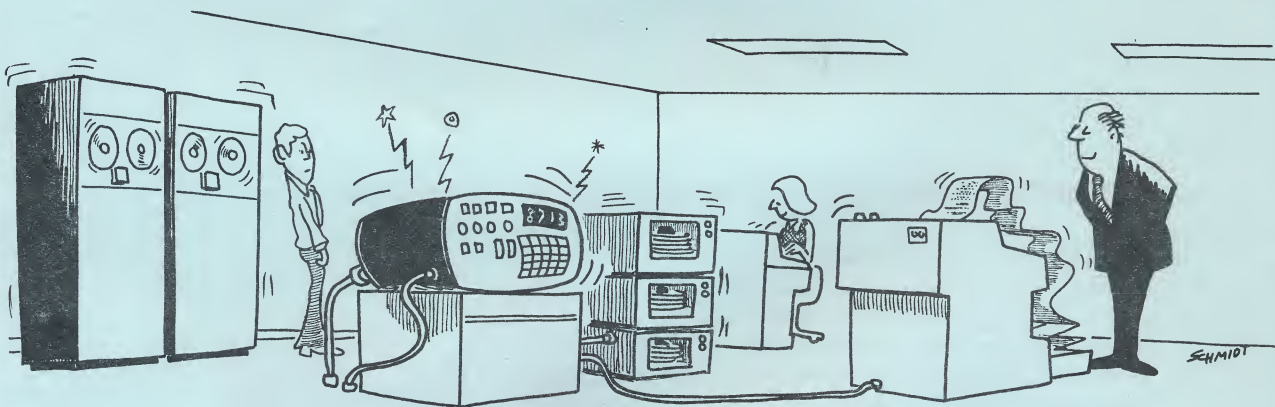
Case 3

Another financial institution had

wide variety of applications, and apparently have a long and useful life. It is a great testimonial to the hardware designers and software developers.

But we are compelled to wonder about the management in these organizations. Have they lost control of the computing operation? What is the bottom line effect of the central facility having to support a multitude of smaller installations and bail them out when they are in trouble? Are these new applications that just appear being documented and supported the way that they would have been if centrally implemented? What is the effect on local management when they have to run a computing center in addition to performing the jobs for which they were originally hired?

There are no fixed answers to any of these questions; doubtless the fi-



card reader, printer, tapes, and even a small disc. The applications now include literature search, project management, and even student scheduling. The departmental secretary can't run the system anymore; it is too complicated. Whenever it crashes, a professional from the computer center has to amble across campus, diagnose the difficulties, and get

their 4K, tty-oriented mini grow in seven years to 32K with card reader, disc, and other peripherals. Formerly used for statistical analysis, it now is a real-time system. Acquired for one application, it now supports many.

Now there is nothing wrong with any of this; it proves that minicomputers are flexible, are comparatively easy to program, support a

nancial details must be developed for each unique case. But the message should be clear. If you are going to install a mini, you had better know what problem you are trying to solve and how to bound the installation. If you ignore the mini after it is installed, it will grow and a whole new set of managerial problems will appear. ❁

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